



National Electrical Manufacturers Association

PHILIP A. SQUAIR

Vice President, Government Relations

November 21, 2018

Submitted Via Email: Ronald.piers-de-raveschoot@ec.europa.eu

Mr. Ronald Piers de Raveschoot
Policy Officer, Energy Efficiency
European Commission - DG ENER

NEMA Comments on Second Draft Ecodesign Requirements for Electric Motors and Variable Speed Drives

Reference Number: EU Directive 2009125

Dear Mr. Raveschoot,

On behalf of its Members, The National Electrical Manufacturers Association (NEMA) submits these comments on the second draft European Union Ecodesign Requirements for Electric Motors and Variable Speed Drives, circulated on October 24, 2018. These comments are submitted on behalf of NEMA Motor and Generator Section and Industrial Controls Section Member companies.

NEMA represents nearly 350 North American electrical equipment and medical imaging manufacturers that make safe, reliable, and efficient products and systems. Our combined industries account for 360,000 American jobs in more than 7,000 facilities covering every U.S. State and many Provinces and States in Canada and Mexico. Our industry produces \$106 billion shipments of electrical equipment and medical imaging technologies per year with \$36 billion exports.

If you have any questions on this submission, please contact Alex Boesenberg of NEMA at 703-841-3268 or alex.boesenberg@nema.org

Sincerely,

A handwritten signature in black ink that reads 'Philip A. Squair'.

Philip Squair
Vice President, Government Relations
National Electrical Manufacturers Association

NEMA Comments on Second Draft Ecodesign Requirements for Electric Motors and Variable Speed Drives

1. NEMA submitted detailed comments¹ in response to initial draft. Unfortunately, they resulted in minimal changes to that draft. Today's comments reiterate and expand our initial comments.
2. While the definitions of covered products have been improved when compared to the initial draft, the definitions and scope wording still need further improvement. The definitions of affected and exempted products must be clear and not prone to misunderstanding. Accurate compliance and effective enforcement start with clear, understandable requirements. Additional wording is needed in the draft regarding definitions for the new categories of covered products, i.e. single phase motors and variable speed drives (VSD). NEMA and CEMEP recommend you proactively consult with them in drafting this wording.
3. Under the current draft, all single phase small electric motors continue to be in scope of regulation despite NEMA and CEMEP previous comments challenging the belief that they represent significant energy savings potential. We again call on the Commission to publish the data it used to support this dubious conclusion.
4. As we stated previously, the projected annual energy savings claim of 57 TWh by 2020 in item 8 of the Act is vastly overstated and no analytical evidence is provided to justify this or other savings estimates. The European Commission should substantiate its conclusions more transparently and provide a cost-benefit analysis of the proposal.
5. NEMA member experts do not support the Commission's conclusion that it is technologically feasible to achieve all the performance levels outlined in the draft regulation. We request the EU share the supporting data that justifies and demonstrates these levels are achievable prior to the next review of this draft regulation. If such data do not exist, this regulatory activity should be discontinued until proper data gathering and analysis is conducted. We continue to express our concern that the proposal will unduly disrupt the market and burden consumers.

NEMA believes the Commission should develop supporting data prior to establishing IE4 standards in this Act. This will be difficult, however. Per Table 1 from IEC Standards 60034-30-1, IE3 and IE4 levels are not possible for any single phase motors, and only some single phase motors are capable of achieving IE2. As proposed, the performance levels would eliminate certain products from the market. This should be more clearly investigated as part of the supporting, published analysis. Additionally, we have concerns regarding the limitations of repeatable, accurate testing and the physical realities of manufacturing variation. NEMA and CEMEP jointly agree that for 0.75 kW and larger three phase machines efficiency levels above IE3 should not be regulated since the products are not consistently available and greater energy efficiency is possible from a systems approach.

6. We reaffirm our previous comment that the justification for establishing requirements for

¹ <https://www.nema.org/Policy/SiteAssets/Pages/Rulemaking-Comments/NEMA%20Comments%20on%20Draft%20EU.pdf>

Variable Speed Drives lacks the proper cost/benefit analysis that would normally accompany such a large scope expansion. There is more value in establishing process control and the use of drives when appropriate. Unnecessary, or too-aggressive, requirements for VSD would result in increased cost and reduced product adoption rates, both of which would discourage the use of VSD.

7. The lack of supporting data for VSD performance conclusions increases our concern that the EUC did not adequately investigate representative products, and that some drive topologies which can be very effective in the field have not been tested or represented. The investigation of appropriate and feasible requirements for VSD IE3 and IE4 levels is an appropriate task for IEC WG 18.
8. The IE1 and IE2 energy efficiency levels proposed in the Annex for Variable Speed Drives are not harmonized with IEC Standards for these products. Both IEC/EN Standard 61800-9-2 and EN 50598-2 provide performance requirements for variable speed drives. NEMA proposes the EUC harmonize with IEC/EN Standard 61800-9-2.
9. We believe that the changes to Table 6 to provide baseline energy losses to be coupled with multipliers for IE2, 3, & 4 are merely a repackaging of the previous draft table without easing of the requirements as NEMA proposed. Furthermore, the second draft proposes a correction factor that introduces IE3 and IE4 standards for VSDs that are not consistent with any published standards. The EUC should leverage the work of published international standards, developed in rigorous processes with multi-national participation, not set standards arbitrarily as proposed in Table 6 and the associated text.
10. We reiterate our concern that Table 7 of the Annex states that total losses $(1-\eta)$ for motors with a rated output of above 150 kW and equal or below 1000 kW should not exceed the value calculated based on the declared η by more than 10%. This value of 10% originates from Table 20 of IEC 60034-1 but that figure is currently in revision to be changed to 15% to align with the up to 150kW value. The tolerance in the draft EU regulation should therefore change to 15% to harmonize with the emerging new version of 60034-1 to account for both manufacturing variations and testing uncertainty.
11. As written, Annex 2 Part 2 does not allow for the use of Alternate Efficiency Determination Methods (AEDM). AEDM should be allowed, and clearly stated as allowed, since modeling efficiency of products during design and construction is commonplace compared to physical testing and provides a better representation of the nominal efficiency for actual product. For reference, the AEDM method utilized by the U.S. Department of Energy can be found in the 10 Code of Federal Regulations Part 431.17.
12. The Commission has removed the proposed performance requirements for variable speed drives under 0 (zero) load conditions, consistent with our comments to the first draft. We support this change, which will reduce unnecessary testing and the associated time and resources.
13. Finally, NEMA continues to believe the Commission should abandon this regulatory effort. If the Commission firmly intends to continue regulatory action, at the very least the proceeding should pause until essential IEC standards revisions (e.g. 61800-9-2) are completed.